

Samples from the latter mines were tried by the P. and O. Company with good results. The Japan coals are certainly Tertiary and most probably Miocene. Though brittle, they make such good steam coals that they are preferred to every other except Cardiff coal. Borneo is a mass of coal, and, as I believe, of very different ages. Those of Labuan were said to be Tertiary; those of Brunei look much older. But I question the Tertiary age of the Labuan beds.

The general character of the geology of the regions I have mentioned is (1) Granite rocks with older volcanic dykes; (2) Palæozoic schists and slates; (3) Limestones in detached outliers, probably of Carboniferous age; (4) Coal of various ages. There has been little upheaval, and that has revealed marine, Miocene, and Pliocene beds, with some few carbonaceous deposits.

J. E. TENISON-WOODS

Osaka, Japan, September 24, 1885

### JOHN HUNTER'S HOUSE

EARL'S COURT HOUSE, once the residence of the illustrious John Hunter, has been made very properly the subject of a letter in the *Times* of Tuesday last, by Dr. Farquharson, M.P. The house, with which I have been familiar for the past twenty-two years, is well worth all the attention of the curious which Dr. Farquharson claims for it. It differs, no doubt, somewhat from what it was in Hunter's time, but not so much, I think, as my friend supposes; for a drawing I have had made of it, when compared with another drawing taken not long after Hunter's death, and now in the possession of the Royal College of Surgeons, shows no very important change. The Lions' Den, of which I have also had a faithful copy taken, is still in good preservation, and Mrs. Hunter's boudoir retains all its original character, as she, the accomplished authoress of the well-known song,—

"My mother bids me bind my hair,"—

had it herself decorated. The copper in which the Irish giant was boiled down is in good order, and stands in an outhouse in the same place in which it stood when the giant, in piecemeal, found his way into it. In 1850 the late distinguished scholar, Dr. Robert Willis, of Barnes, took me to Kensington to see a man who remembered John Hunter. He was the son of Hunter's gardener, and was ten years of age at the time of Hunter's death in 1793. This man related some curious anecdotes of the great anatomist. One of these had reference to his presence of mind. One day as Hunter was entering his garden by the field at the back, still a field, one of the lions had got loose from its den. From the house the people called out to Hunter to get out of the way into a place of safety. Instead of this he took his handkerchief from his pocket, and marching boldly up to the lion, flipped it back into the den, and securely shut it in.

That Hunter conducted dissections in this place is clear from the remains that have been dug up in the garden. I examined a number of bones that were thus unearthed by the late occupier during some improvements which were going on about fifteen years ago. The bones showed some sections and re-sections of so curious and skilful a kind, that I asked and obtained permission to retain a few of them.

Upon the death of John Hunter, Earl's Court, held for a time by Mrs. Hunter, and by more than one future occupier, was turned into an asylum for ladies under restraint for lunacy, was held for many years as that by the Misses Bonney, and got the general name of "Miss Bonney's House" or Asylum. In 1864 it passed, still as an asylum, into the possession of my late friend Dr. Gardner Hill, who played so great a part as the practical pioneer of the system of the treatment of the insane without restraint. Dr. Hill continued to reside in the

house till his death, by apoplexy, a few years ago, and his family have held it since his death up to the close of the past year, when they left it on the expiration of their lease. The fate of the house will almost certainly be its absorption, with its grounds, into a square or a series of streets, so that nothing will remain of it beyond the views which I and others who are given to antiquarian research may have taken of it, and at my instance Mr. Gardner has added several views to his magnificent collection of London. The memory of the place is thus secured for the future at least. But I agree with my learned brother Farquharson that the copper ought to go to the Hunterian Museum, to join the giant who is already so conspicuous and famous there.

BENJAMIN WARD RICHARDSON

### NOTES

AN American Pasteur Institute has been incorporated in New York, its declared objects being the study and treatment of rabies and diseases susceptible of inoculation.

THE Rev. Thomas John Main, formerly Fellow of St. John's College, Cambridge, and a chaplain in the Royal Navy, died on the 28th ult. Mr. Main took his Bachelor's degree at St. John's College in 1838, as Senior Wrangler and first Smith's Prizeman, and proceeded M.A. in due course. He was for a period of thirty-four years Professor of Mathematics at the Royal Naval College at Portsmouth. Mr. Main was the author of various works on the marine steam-engine.

THE death is announced from St. Petersburg of Prof. Zakharow, of the University there, an eminent Orientalist. Nearly thirty years ago he went to China as a Russian missionary, and after General Ignatieff's Treaty of Peking in 1860, he was employed, on account of his knowledge of Chinese and Manchu, in the work of delimiting the frontier created by that treaty. He then prepared a large map of this region, of which only one copy has been made, which is at present in the Russian Topographical Department. He also compiled a Manchu-Russian dictionary, published in 1875, and a Chinese-Manchu-Russian dictionary was almost completed at the time of his death. On his return to Europe he was appointed Professor of Manchu in the University of St. Petersburg, and in addition to his dictionaries compiled also a grammar of that language, which is now dying out in China, as the Manchus are a mere handful in the midst of the Chinese Empire, and are gradually losing their special tongue. Manchu is, however, still used at Chinese Court ceremonials, and in officially addressing the Emperor of China in person. M. Zakharow's great works have therefore a special value.

THE Association for the Improvement of Geometrical Teaching will hold its annual general meeting on Friday, January 15, at 11.30 a.m., at University College, Gower Street. At the afternoon meeting (2 p.m.) the President (R. B. Hayward, F.R.S.) will give an address on the Correlation of the Different Branches of Elementary Mathematics. A discussion will follow the reading of the address. Persons interested in the objects of the Association or in the subject of the address are cordially invited to attend.

THE Prince of Wales having expressed his desire that specimens of Australian fish might be exhibited in the Aquarium which will be opened in connection with the forthcoming Indian and Colonial Exhibition, the Trustees of the Melbourne Exhibition Building have given the matter their consideration, with a view of determining if specimens of rarer varieties could be sent from the Melbourne Aquarium. It has, however, been found that very great cost would be incurred in sending anything like an adequate supply of fish, and the project has therefore

been abandoned. It has been decided instead to forward for exhibition in the Victorian Court upwards of 100 water-colour drawings of the fishes of the colony, which have been executed to the order of the Trustees by a competent artist, and which, it is hoped, will be of interest to ichthyologists and others. It is also the intention of the Trustees to request the Government to assist them in the production of a descriptive work on Victorian fishes, the illustrations of which will be taken from these drawings. Prof. M'Coy has promised his assistance, and Mr. J. E. Sharrard, the Secretary to the Trustees, is already engaged in collecting materials for the work.

It is announced that the seventh Congress of Orientalists will be held at Vienna in September next. The sittings will take place in the lecture-hall of the new University. It is hoped that the Archduke Rénier will act as honorary president.

AMONG the additional lectures announced at the Society of Arts are:—"The Experiments with Lighthouse Illuminants at the South Foreland," by E. Price Edwards; "Magnetism of Ships and the Mariner's Compass," by Mr. W. Bottomley, jun.; "Photography and the Spectroscope in their Application to Chemical Analysis," by Prof. W. N. Hartley; "The Scientific Development of the Coal-Tar Industry," by Prof. R. Meldola.

REPORTS reached London on Tuesday that a severe shock of earthquake was felt on Monday morning at 10.20, all along the route between Dartmouth and Kingsbridge, Devonshire, as well as at other places lying more inland. Just after leaving Dartmouth the driver of an omnibus which runs daily to and from Kingsbridge experienced an oscillation of the ground, which lasted some seconds. On arriving at Stoke Fleming a number of persons stated that they felt the shock. A house at Stokepenny is stated to have "rocked." In the "Green Dragon" public-house the shock caused a quantity of plaster to fall down from the ceilings. At Street the oscillation was similarly felt. At Blackawton the shock is reported to have been very conspicuously felt. It appears, however, to have been most severe at Torcross. The occupants of the "Fisherman's Arms" public-house, which stands on the beach, were so frightened that they rushed out of the place, thinking, as they said, that the building was going to fall. Mr. T. R. Vickary, of the Torcross Hotel, gives several particulars of the severity of the shock. It appears to have been felt by almost every one in the village. At Stoneham, Chillington, and Frogmore the oscillation was also experienced.

A SLIGHT shock of earthquake, lasting seven seconds, was felt in Venice at 11 o'clock on the night of the 29th ult. No damage was done.

THE volcano of Colima, on the Pacific coast of Mexico, exhibited a violent eruption on the 27th ult., which caused great alarm. The streams of lava completely covered the sides of the mountain. At the date of the last report flames were still darting from the crater, and clouds of smoke overhung the summit.

MR. BLANFORD'S theory of the winter rains of Northern India, based on a study of the meteorological registers, is as follows:—"We have, he says, in the first instance, steady evaporation over an extensive moderately humid tract, at a comparatively low temperature, it is true, but in an atmosphere the stillness of which allows of the steady diffusion of the vapour to high levels, and the consequent formation of cloud. The slight disturbance of the baric equilibrium which follows (since the vertical decrease of temperature in a cloud-laden atmosphere is slower than in a clear atmosphere) is succeeded by a gentle indraught of warmer and more humid air from the south; for the Himalaya bars access to northerly winds. A vortex is then

rapidly formed, accompanied with an increased cloud-formation, and speedily followed by precipitation, which takes the form of snow on the hills, and of rain over the river plains. The rainfall is invariably followed by a cool wind, and a wave of high barometric pressure from the west, which Mr. Blanford attributes to a drainage of cool heavy air from the valleys of the hills surrounding the Punjab and the high lands of Beloochistan and Afghanistan—air cooled by precipitation on the mountains. If this theory be correct, the stillness of the atmosphere, combined with the presence of a moderate evaporation, must be accepted as the condition which primarily determines the formation of barometric minima and the winter rains of Northern India. As this stillness is due to the presence of lofty mountain-ranges in the north, it follows that, if the Himalayan chain were absent, these rains would probably cease, for any local evaporation in the Punjab and the valley of the Ganges would be swept away by strong dry north-east winds blowing from the seat of high pressure, which in the winter months lies in Central Asia.

THE electric lighting of the French Opera House is almost complete. The number of incandescent lights is 3000.

M. JOUBERT, the director of the Trocadero popular Observatory, has made arrangements with the several telegraphic stations in Paris, so that the public may be warned when the sky is deemed sufficiently clear for conducting observations and demonstrations.

MESSRS. SWAN SONNENSCHN AND CO. announce for early publication a Pocket Handbook to the Flora of the Alps, specially adapted for botanical tourists, and edited by Mr. A. W. Bennett.

ACCORDING to the Report for the past year of the Superintendent of the Royal Botanic Garden at Calcutta, further attempts to introduce into Bengal the kind of plantain (*Musa textilis*) from which Manilla hemp is derived have proved failures, owing to the low temperature of the cold weather; but the plant (*Sansevieria Zeylanica*) from which bow-string hemp is obtained grows very well. The Japan paper-mulberry, which has lately been introduced, has also been a success. Efforts are being made to introduce other plants of economic value, the principal being the coca plant, from which the important alkaloid cocaine is derived. The additions to the herbarium during the year appear to have been unusually large and comprehensive. As an example of the public utility of the Garden, it may be mentioned that 23,433 living plants were distributed to public institutions in India, while those sent abroad were proportionally numerous. In the same way 2,979 packets of seeds were sent out. The Report of the Lloyd Botanic Garden in Darjeeling is also included in the paper, which concludes with the usual statistical returns. We are glad to notice at the end a copy of a resolution conveying the thanks of the Lieutenant-Governor of Bengal to those concerned in administering the Gardens.

WE have received the numbers of the *Journal* of the Asiatic Society of Bengal (Science Section) for 1885, so far as they have been published. They contain in all eleven papers, some being continuations of papers previously published. Mr. Lionel de Nicéville contributes a fourth list of butterflies taken at Sikkim in October 1884, with notes. The number of species already recorded was 284, which is now raised to 313, or about twice the number of species found throughout the year in Calcutta; but even this number does not exhaust the region, for some valleys and the higher elevations were not explored. The same writer describes some new Indian *Rhopalocera*, and also a list of the butterflies of Calcutta and its neighbourhood, with notes on their habits, food-plants, &c. Mr. Atkinson publishes the second and third instalment of his notes on Indian

*Rhynchota*. Dr. Giles, the Surgeon-Naturalist to the Indian Marine Survey, writes on the structure and habits of *Cyrtophium calamicola*, a new tubicolous amphipod from the Bay of Bengal, a description of a new species of the amphipod genus *Melita* from the same place, and notes on *Prothallus* of *Padina pavonia*. These three form part of the Natural History Notes of the Indian Marine Survey steamer *Investigator*. Commander Alfred Carpenter, of the same steamer, under the title "The Swatch of no Ground," explains the presence in the deltaic banks ("the-Swatch") off the mouths of the Ganges and the Brahmaputra of channels of great depth. Mr. Hill, the Meteorological Reporter to the North-Western Provinces and Oudh, contributes observations on the solar thermometer at Lucknow, while last of all comes a paper from Japan. Dr. O. F. von Möllendorff (not to be confounded with his brother of recent Corean fame) writes on Japanese land- and freshwater-mollusks, a series of notes based chiefly on a collection made by Dr. John Anderson during the year 1884, and sent to the writer for classification.

WE are glad to learn that Prof. Morse, Director of the Peabody Academy of Science, has in the press a work entitled "Japanese Homes and their Surroundings." Prof. Morse, it may be remembered, was Professor of Zoology in the University of Tokio, and his prehistoric discoveries in Japan formed one of the earliest of the publications of that institution. The publishers of the work, which will contain numerous illustrations by the author, are Messrs. Ticknor and Co. of Boston.

AT a meeting of the Seismological Society of Tokio held on November 18, 1885, in the University there, Prof. Shida described an instrument which he had designed to give an automatic record of earth-currents. The chief feature in it is an ingenious method of obtaining a record of the position of the coil or needle which indicated the current which might be passing through the instrument. This was accomplished by the needle, as it turned, making a series of almost frictionless electrical contacts between a series of metallic points and a film of liquid. The instrument has been practically worked, and is said to have yielded satisfactory records. A second paper by the same writer gave a history of all the facts with which we are acquainted respecting the phenomena of earth-currents. A considerable portion of the material embodied in the paper was derived from Prof. Shida's own observations on the lines and cables of this country. He made numerous references to instances where earth-currents of unusual magnitude had accompanied or preceded earthquakes. Many theories have been advanced to account for these phenomena, and it has been demonstrated by several investigations that they have a connection with the occurrence of sunspots. In the discussion which followed, Prof. Knott referred to the possibility of these disturbances being due to the inductive action of electrified bodies of air, while Prof. Milne added to the instances adduced by Prof. Shida of the simultaneous occurrence of earthquakes and earth-currents. Earthquakes occurring in America have, by the currents which had accompanied them, recorded themselves in Europe.

THE Japanese do not appear to have lost any of their faith in the efficacy of vaccination for the small-pox. They have just enacted a very stringent law on the subject, for, besides ordinary vaccination in the first year of infancy, it provides for at least two subsequent re-vaccinations at intervals of from five to seven years, so that by the time a child has reached its fifteenth year it will have been vaccinated three times. Besides, during epidemics of small-pox, local authorities have power, when they deem it necessary, to order the vaccination of all the inhabitants of their districts, irrespective of the vaccinations required by the law.

WE are informed that it is not the case that Dr. Sklarek has arranged to edit a new scientific journal to be published in Brunswick.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus*, ♀) from India, presented by Mr. T. W. Hall; a Sooty Mangabey (*Cercocebus fuliginosus* ♀) from West Africa, presented by Mr. T. Riseby Griffith; a Common Badger (*Meles taxus*), British, presented by Mr. Charles E. Russell; a Siamese Blue Pie (*Urocissa magnirostris*) from Siam, a Chinese Jay Thrush (*Garrulus chinensis*) from China, a Brazilian Hangnest (*Icterus jamaicæ*) from Brazil, presented by Mr. Charles Clifton, F.Z.S.; an Alexandrine Parakeet (*Palaornis alexandri*) from India, presented by Mr. C. Kerry Nicholls, F.Z.S.; a Ring-necked Parakeet (*Palaornis torquatus*) from India, presented by Miss Shackthwaite; a Larger Hill-Mynah (*Gracula intermedia*) from India, presented by Miss G. Lampard; a Greater Spotted Woodpecker (*Dendrocopos major*), British, presented by Mr. A. S. Hutchinson; a Scops Owl (*Scops giu*), British, presented by Mr. J. H. Leech, F.Z.S.; a Caracal (*Felis caracal*), a Puff Adder (*Vipera aridans*), three Horned Vipers (*Vipera cornuta*), an African Cobra (*Naja haje*), a Hyghian Snake (*Elaps hygie*), a Smooth-bellied Snake (*Homolopsa lutrix*), two Rhomb-marked Snakes (*Psammophylax rhombeatus*) from South Africa, presented by the Rev. G. H. R. Fisk, C.M.Z.S.; twelve Quails (*Coturnix communis*) from South Africa, presented by Capt. M. P. Webster; a Leopard (*Felis pardus*) from India, five Mauge's Dasyures (*Dasyurus maugei*), a White-backed Piping Crow (*Gymnorhina leuconota*) from Australia, deposited; a Virginian Opossum (*Didelphys virginiana*) from North America, purchased; a Collared Fruit Bat (*Cynonycteris collaris*), born in the Gardens.

#### OUR ASTRONOMICAL COLUMN

DISCOVERY OF A NEW NEBULA BY PHOTOGRAPHY.—MM. Paul and Prosper Henry have recently announced the discovery by means of photography of a new nebula in the Pleiades. It was first photographed on November 16 last, and, though it was again photographed on December 8 and 9, MM. Henry have as yet been unable to detect it by direct telescopic observation. The nebula is about 3' in extent, and "très-intense." It presents a well-marked spiral form, and seems just to escape Maia. Its position is as follows:—R.A. 3h. 38m. 57s., Decl. 24° 1' N.

GORE'S NOVA ORIONIS.—M. C. Wolf, who has examined the spectrum of this star, finds that the impression of the presence of bright lines which a first glance produces is not confirmed when the spectrum is more carefully examined under a high dispersion. The spectrum is simply that of the well-known third type, viz. a continuous spectrum crossed by a succession of bands, which terminate towards the violet in a very dark and sharp edge, and which gradually shade away towards the red. M. Wolf further believes that he was able, in the moments of best definition, to resolve the dark bands into lines. The Nova therefore does not appear to resemble the so-called "temporary" stars, but to be simply a variable of the same class as Mira Ceti. Prof. Millosevich gives its exact position for 1885.0 as follows:—R.A. 5h. 48m. 59.59s., Decl. 20° 9' 13.2" N.; or 1m. 25.21s. *f* and 5' 59".14 *s* of  $\gamma$  Cygni. It is almost precisely due north of  $\alpha$  Orionis, and distant from it 12° 46' 20".

THE ASTRONOMICAL PRIZES OF THE PARIS ACADEMY OF SCIENCES.—The Lalande Prize of the Académie des Sciences has been decreed to M. Thollon for his great map of the solar spectrum. This map, which has so far demanded four years of uninterrupted work, extends from *A* to *b*, and contains 3200 lines, 900 of which M. Thollon has been able to identify as of telluric origin. The Damoiseau Prize is reserved, no memoir having been offered for it. The subject proposed is the same as in former years: a revision of the theory of the satellites of Jupiter; a discussion of observations with special reference to the direct determination of the velocity of light; and lastly, the